

REMARKS

Claims 1-18 are pending in the present application. Claims 1, 6, 11 and 15 are amended above. No new matter is added by the claim amendments. Entry is respectfully requested.

Claims 1-18 are rejected under the judicially created doctrine of obviousness-type double patenting over claims of U.S. Patent No. 6, 415, 858. In response, the applicants are filing herewith a Terminal Disclaimer. It is believed that the double patenting rejections of claims 1-18 are overcome.

Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of EP 0411916 and Oswalt, et al. (U.S. 4,850,201). Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0411916 and Oswalt, et al. as applied to claims 11-18, and further in view of Marshall (U.S. Patent Number 2,466,460). Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0411916 and Oswalt, et al. as applied to claims 11-18, and further in view of Newton (U.S. 3,237,415). Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0411916 and Oswalt, et al. as applied to claims 11-18, and further in view of Finnemore (U.S. 2,182,174). Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0411916 and Oswalt, et al. as applied to claims 11-18, and further in view of Tryon (U.S. 2,917,287) or Padden (U.S. 4,071,078). In view of the amendments to the claims and the following remarks, the rejections are respectfully traversed, and reconsideration of the rejections is requested.

The present invention of amended claims 1-10 is directed to a temperature control system and method for a workpiece chuck. A circulating unit is connected to the chuck for circulating a temperature control fluid through the chuck. A refrigeration system in thermal communication with the temperature control fluid is used for controlling the temperature of the temperature control fluid to control the temperature in the chuck. A fluid carrying system is connected to the circulating unit and the chuck for circulating the temperature control fluid through the chuck. A controller is coupled to the fluid carrying system for switching a flow path of the temperature control fluid such that the temperature control fluid at least partially bypasses the refrigeration system. A plurality of temperature sensors are used for sensing the temperature of the temperature control fluid and the chuck such that the refrigeration system uses the sensed

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temperatures of the temperature control fluid and the chuck to control temperature in the temperature control fluid and the chuck.

The present invention of amended claims 11-18 is directed to a temperature control system for a workpiece chuck. A circulating unit is connected to the chuck for circulating a temperature control fluid through the chuck. A refrigeration system in thermal communication with the temperature control fluid is used for controlling temperature of the temperature control fluid to control the temperature in the chuck. The refrigeration system includes a first and second heat exchangers for exchanging heat with the temperature control fluid. A fluid carrying system is connected to the circulation unit and the chuck for circulating the temperature control fluid through the chuck. A controller is coupled to the refrigeration system for coupling hot gas around the first heat exchanger to the second heat exchanger to bypass as least partially the first heat exchanger to heat the temperature control fluid. A plurality of temperature sensors are used for sensing the temperature of the temperature control fluid and the chuck such that the refrigeration system uses the sensed temperatures of the temperature control fluid and the chuck to control temperature in the temperature control fluid and the chuck.

The claims are amended to more clearly claim these features of the invention. Specifically, the claims are amended such that all of the claims now set forth a plurality of temperature sensors for sensing the temperature of the temperature control fluid and the chuck such that the refrigeration system uses the sensed temperatures of the temperature control fluid and the chuck to control temperature in the temperature control fluid and the chuck. It is believed that none of the cited prior art references, taken alone or in any combination, teach or suggest the claimed invention. Accordingly, it is believed that all of the claims are allowable over all of the prior art of record, and reconsideration of all of the rejections is requested.

EP '916 teaches an electrically heated wafer table cooled by the passage of constant temperature water. EP'916 fails to teach or suggest a plurality of temperature sensors for sensing the temperature of a temperature control fluid and a chuck such that a refrigeration system uses the sensed temperatures of the temperature control fluid and the chuck to control temperature in the temperature control fluid and the chuck, as set forth in the amended claims.

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Oswalt, et al. teach a refrigeration system including a hot gas bypass. Oswalt, et al. also fail to teach or suggest a plurality of temperature sensors for sensing the temperature of a temperature control fluid and a chuck such that a refrigeration system uses the sensed temperatures of the temperature control fluid and the chuck to control temperature in the temperature control fluid and the chuck, as set forth in the amended claims.

Since neither EP'916 nor Oswalt, et al. teaches or suggests the features of the invention set forth in the amended claims, there is no combination of the references which could result in providing such teaching or suggestion. Accordingly, it is believed that the claims are allowable over EP'916 and Oswalt, et al., and reconsideration of the rejections of claims 1-10 under 35 U.S.C. § 103(a) based on EP'916 and Oswalt, et al. is respectfully requested.

Marshall, Newton, Finnemore, Tryon and Padden teach bypass conduits. All of these references fail to teach or suggest the applicants' claimed plurality of temperature sensors for sensing the temperature of a temperature control fluid and a chuck such that a refrigeration system uses the sensed temperatures of the temperature control fluid and the chuck to control temperature in the temperature control fluid and the chuck, as set forth in the amended claims. Since neither of EP'916 and Oswalt, et al. teaches these features of the invention, there is no combination of any of the five secondary references listed above which would result in providing such teaching or suggestion.


Since none of the cited references, taken alone or in any combination, teach or suggest the applicants' claimed invention, it is believed that the amended claims are allowable over the prior art of record in the application. Accordingly, reconsideration of the rejections of claims 1-10 under 35 U. S. C. § 103(a) based on EP'916 and Oswalt, et al. combined with Marshall, Newton, Finnemore, Tryon and/or Padden is respectfully requested.

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It is submitted that all claims are in condition for allowance, and such allowance is respectfully requested. If prosecution of the application can be expedited by a telephone conference, the Examiner is invited to call the undersigned at the number given below.

Respectfully submitted,

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